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AFOEHL REPORT 90-193EQ00131KHH



**Medical and Hazardous Waste  
Technical Assistance Survey  
Minot AFB ND**

LINDA B. ALBRECHT, Capt, USAF, BSC

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JAN 29 1991  
S D OCTOBER 1990

**Final Report**

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**AF Occupational and Environmental Health Laboratory (AFSC)  
Human Systems Division  
Brooks Air Force Base, Texas 78235-5501**

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REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188
<p>Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.</p>			
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED	
	October 1990	Final 4 - 7 Jun 90	
4. TITLE AND SUBTITLE		5. FUNDING NUMBERS	
Medical and Hazardous Waste Technical Assistance Survey, Minot AFB ND			
6. AUTHOR(S)			
Linda B. Albrecht, Capt, USAF, BSC			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)		8. PERFORMING ORGANIZATION REPORT NUMBER	
AF Occupational and Environmental Health Laboratory Brooks AFB TX 78235-5501		AFOEHL Report 90-193 EQ00131KHH	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
Same as Blk 7			
11. SUPPLEMENTARY NOTES			
12a. DISTRIBUTION/AVAILABILITY STATEMENT		12b. DISTRIBUTION CODE	
Statement A. Unlimited, approved for public release			
13. ABSTRACT (Maximum 200 words)			
<p>At the request of HQ SAC/SGPB, the AFOEHL conducted a medical and hazardous waste technical assistance survey at Minot AFB (MAFB) from 4-7 June 1990. The scope of this survey was to address infectious and hazardous waste management practices, explore opportunities for waste minimization, and to determine wastestreams. The survey team performed a shop-by-shop evaluation of waste management practices and met with both infectious and hazardous waste managers to discuss their waste programs. Recommendations include: (1) conduct additional training on infectious waste segregation; (2) develop a hospital policy on segregation; (3) ensure the proper materials are available for segregation; (4) one-way valve masks, spill response kits, and full-faced organic vapor masks should be ordered for emergency response; (5) conduct a spill response exercise to familiarize personnel with emergency procedures; (6) dispose of all excess chemicals properly; (7) keep minimal amounts of chemicals available; (8) increase the operating temperature of the incinerator; (9) transport all infectious waste in a government vehicle; (10) develop a contingency plan for infectious waste disposal.</p>			
14. SUBJECT TERMS		15. NUMBER OF PAGES	
Hazardous Waste Management Minot AFB Albrecht		40	
Infectious Waste Management		16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	none

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## ACKNOWLEDGMENT

The author greatly appreciates the support and assistance given by Minot AFB. Major Ellis and the entire staff of the Bioenvironmental Engineering Section provided essential information and assistance needed to accomplish this survey.



Accession For	
NTS CR481	✓
EDC TPS	✓
U. Unrestricted	✓
Classification	
By	
D. tis No. /	
Availability Control	
Dist	Available for Special
A-1	

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## I. INTRODUCTION

On 5 February 1990, the 357th Strategic Hospital, Minot Air Force Base ND requested through HQ SAC/SGPB that the Air Force Occupational and Environmental Health Laboratory (AFOEHL) perform a hazardous and medical waste survey of their hospital (see Appendix A). Base personnel were particularly concerned with medical waste storage and disposal practices.

Capt Albrecht conducted the hazardous and medical waste survey at the 857th Strategic Hospital from 4 to 7 June 1990. The scope of this survey was to evaluate the hospital's medical and hazardous waste management practices from the point of generation to their ultimate disposal. The survey also addressed areas of regulatory compliance, program effectiveness, and waste minimization.

## II. DISCUSSION

A. Base Description: Minot AFB is a Strategic Air Command base which has a dual mission. Both a flying wing of combat ready B-52s and KC-135s and a missile wing are assigned to Minot. The hospital provides medical care for all active duty, retirees, and dependents. Additionally, the hospital provides care for all the veterans and an Indian reservation.

B. Current Disposal Practices and Limitations: Currently the 857th Strategic Hospital burns all medical waste in the incinerator. The majority of medical waste is transported within the facility by Housekeeping and stored in the incinerator room until it's burned by housekeeping personnel. The hospital's civil engineering personnel are responsible for operating and maintaining the incinerator.

The incinerator is two years old and has had no downtime. Its capacity is 100 pounds an hour. The only stack testing done to date was visible emissions. The emissions ranged from 1.3 to 36.9%. The federal government currently regulates visible emissions at 40% for an average of 6 minutes. The incinerator costs 2,900 dollars a year to operate.

Some infectious waste and hazardous waste that is exempt under the laboratory waste exemption in 40 CFR 261.3, generated in process are discharged into the sanitary sewer. This sewage is collected and transported by gravity and pressure lines to the Minot Wastewater Treatment Plant. The wastewater discharge limits are set by the Code of Federal Regulations Title 40, Sections 261.3, 403, 433, 459, and 460 and the State of North Dakota Clean Water Laws.

The remainder of the hazardous waste from the 857th Strategic Hospital is collected and turned in to facility management for disposal through the Defense Reutilization and Marketing Office (DRMO). Additionally, the X-ray Department uses a silver recovery system. The fixers are then discharged to the sanitary sewer.

### III. PROCEDURES

The first step of the survey was to review the hospital's hazardous and medical waste plan, infection control program, and the bioenvironmental engineer's hazardous chemical inventory. The survey team visited all sections generating medical or hazardous waste. Their operations were observed, disposal practices were discussed, and survey forms (Appendix B) were completed by shop personnel. The survey forms were used to document medical waste disposal practices. A second survey form was completed by facility management (Appendix C) to document treatment options and costs.

During this survey the hospital personnel completed surveys on training and infectious waste disposal. The disposal practices and training frequencies are summarized in Appendixes D and E, respectively. The team visited all hazardous waste satellite sites and evaluated them. The following personnel were contacted about their responsibility and involvement in the hospital hazardous waste program:

Mr Atkinson, Environmental Coordinator  
Maj Ellis, Bioenvironmental Engineer  
Mr Finneseth, Facility Manager  
MSgt Good, Medical Logistics NCOIC

The survey team also visited and evaluated the medical waste storage area. The following offices were contacted about their involvement and responsibility in the medical waste program:

Capt Kurn, Environmental Health Office  
Mr Finneseth, Facility Management Infection Control Officer

### IV. RESULTS AND DISCUSSION

#### A. Medical Waste Program

The current medical waste program is operating fairly well. The infection control officer is responsible for training all the hospital personnel on infection control, and the facility manager is responsible for medical waste disposal. The regulations on medical waste addressed all aspects of infection control and infectious waste disposal including antineoplastic drug administration and disposal.

#### B. Hazardous Waste Program

The facility manager also manages the hospital's hazardous waste. Because these programs are so different, it may be better to assign responsibility to two different people. The medical logistics officer is already responsible for several portions of the hospital's hazardous waste program. They have developed material turn-in procedures, and coordinated with the bioenvironmental engineer and the base environmental coordinator. However, they do not have the responsibility for the program. Appointing the medical logistics officer or the NCOIC as the hazardous waste program manager will close this loop and allow the hospital more control over its hazardous waste program.

## V. OBSERVATIONS

A. Medical Logistics has developed an excellent hazardous material and hazardous waste disposal program. Their program involves the bioenvironmental engineer for waste characterization and the environmental coordinator for hazardous waste disposal. While developing this program took a substantial amount of work and delayed routine destructions, it ensured that the hospital complied with the federal laws.

B. Hospital personnel are confused about what is infectious waste. Some sections define infectious waste as waste saturated with blood, while others define it as waste with any blood or body fluids on it. Therefore, different sections are red bagging different items. This not only causes internal problems, it increases the quantity of infectious waste.

C. In the laboratory, paper, carbon paper, alcohol pads, and gloves were found in the infectious waste bags. Both infectious waste and trash bags are available in the area. The laboratory believes all their waste is incinerated including the paper waste. This unsegregated waste greatly increases the amount of infectious waste the hospital is incinerating.

D. The Dental Clinic is storing infectious waste next to the sterilizer. This increases the potential for contamination of the sterilized instruments. Also, several vials were found in their infectious waste bag. These vials could puncture the bag.

E. All waste on the labor and delivery ward is considered infectious. The ward red bags all the patients' waste and all the nursery waste, including the diapers. The lack of segregation increases the quantity of infectious waste that is disposed of.

F. The surgery department also considers all waste infectious. All waste is red bagged. Any waste generated prior to beginning the operation could be segregated because it is not infectious.

G. The Emergency Room has no method to identify infectious patients, especially trauma patients, prior to treatment. Personnel are susceptible to both blood and airborne diseases when dealing with trauma cases; however, they do wear gloves while treating patients.

H. Hospital personnel generally knew the procedures for cleaning up spills; although, some personnel still believe bioenvironmental engineering will clean up the spills.

I. There were antineoplastic spill response kits in the pharmacy and medical logistics. However, no antineoplastic kit was available on the multiservice ward where the antineoplastic medication is administered.

J. The antineoplastic spill response kits have a disposable dust mist respirator in them. However, this respirator will not provide adequate protection in a large spill greater than 5 grams.

K. The hospital regulation, 127-2, "Hazardous Material and Disposal," includes infectious waste as a category of hazardous waste. It is not.

L. The bioenvironmental engineering section laboratory has stored chemicals which they haven't used in over a year. They currently have both xylene and formaldehyde, which are both RCRA-regulated hazardous wastes.

M. The dental laboratory is currently storing all flammable chemicals in a drawer in the laboratory. The chemicals are all in glass bottles and could easily break.

N. The Dental Clinic bottles all x-ray fixers, takes it to the hospital's x-ray department, and recovers the silver. One of the hospital's x-ray processors is not on the silver recovery system.

O. The incinerator currently operates at 600° F in the primary chamber and 1800° F in the secondary chamber with no retention time.

P. The Veterinary Clinic is transporting infectious waste to the hospital in a privately owned vehicle.

Q. The hospital has no alternate disposal method if the incinerator breaks down.

## VI. RECOMMENDATIONS

A. Additional training on infectious waste will reduce the confusion about what is infectious waste. This training should emphasize how and why the infectious waste is segregated.

B. The hospital needs to use a standard segregation policy. The infection control committee should review the segregation and infectious waste disposal operating instructions used by the sections. Randomly inspecting sections will ensure that infection control policies are being followed and the waste is being segregated properly.

C. The laboratory should segregate paper, carbon paper, alcohol pads, and other routine trash from the infectious waste. Two cans are available.

D. The Dental Clinic should move the infectious waste container away from the sterilizer, preferably into another room. All vials and other glass waste should be placed in sharps containers.

E. All waste on the labor and delivery ward is not infectious. The majority of the patients' waste is not infectious (in most cases only the peri-pad is saturated with blood). The diapers do not have to be red bagged unless the baby is infectious.

F. All waste generated by the surgery department is not infectious. The waste generated before the procedure begins (usually dressing wrappers and other paper waste) is not infectious and should be segregated. If space is a significant problem, this waste can be removed and replaced with an infectious waste bag immediately before the operation begins. However, a second trash can will probably fit in the operating room.

G. Because the Emergency Room cannot identify infectious patients, especially trauma patients, prior to treatment, it should have one-way valve masks available in all emergency response vehicles for administering mouth-to-mouth resuscitation.

H. An internal exercise involving spill cleanup may help eliminate the misconception that bioenvironmental engineering will clean up spills. It will also emphasize the training that personnel have already received.

I. The multiservice ward needs an antineoplastic spill response kit. One should be ordered from Medical Logistics.

J. All the antineoplastic spill response kits need to be augmented with a full face organic vapor respirator with a HEPA filter. This is the respirator OSHA has approved for large antineoplastic spills greater than 5 ml or 5 g in accordance with OSHA work-practices for personnel dealing with cytotoxic (antineoplastic) guidelines.

K. The hospital regulation, 127-2, "Hazardous Material and Waste Disposal," should be two regulations: one on hazardous waste and one on infectious waste. The infectious waste regulation could be combined with 127-1, "Sharps."

L. All excess chemicals which are not going to be used in the future should be disposed of properly. Chemicals which are RCRA hazardous waste should be packaged according to 40 CFR 264.170. An inventory containing the type and quantity of each waste put into the waste container should be maintained for each container. The waste can then be disposed of by a hazardous waste disposal contractor. Chemicals which are not RCRA hazardous waste can be either disposed of as municipal waste or discharged to the sanitary sewer system (whichever is appropriate).

M. The dental laboratory should only be keeping minimal amounts of chemicals on hand. The excess chemicals should be returned to dental supply where there is a flammable chemical storage cabinet. The chemicals in the laboratory should be moved either to a cabinet or the back of the countertop against the wall. Both of these locations have a lower accident potential than a drawer.

N. The Dental Clinic may want to acquire their own silver recovery system. This will save them the substantial amount of time they currently spend bottling the fixers. The x-ray department should include the other processor on the silver recovery program. DoD policy and AFM 67-1, Vol 4 states the silver will be recovered from all x-ray fixers. The information on how to acquire a silver recovery system is found in AFM 67-1, Chapter 4, paragraph 8C.

O. The hospital must increase the operating temperature of the incinerator and contact the manufacture to verify if it has a 2-second retention time. The new Clean Air Act, expected to pass this summer, will require pathological incinerators to operate between 1600 and 1800° F in the primary chamber and 1800° and 2000° F with a 2-second retention time in the secondary chamber.

P. All infectious waste should be transported in a government vehicle. Using a POV increases the Air Force's liability.

Q. An alternate plan for disposal of infectious waste should be developed immediately. Two possibilities are a memorandum of understanding with a nearby medical facility or crematorium and a contingency contract with an infectious waste disposal firm.

R. The hospital was concerned about whether contracting might be more cost effective than incineration. The hospital is disposing of just under 100 pounds of infectious waste a day. That is approximately 25,000 pounds per year, not including holidays and weekends, at about \$.12 per pound. Most infectious waste disposal contracts cost between \$.20 and \$1.00 a pound depending on the facility's location and size. Minot would probably be closer to the \$1.00 rate. It is more cost effective to incinerate the waste on-site.

## VII. CONCLUSIONS

The 857th Strategic Hospital, Minot AFB ND, has good initial infection control and an excellent hazardous waste program. The base now needs to refine these programs. Education and training are the keys to developing better programs.

## REFERENCES

1. Agency For Toxic Substances and Disease Registry, "The Public Health Implications of Medical Waste: A Report to Congress," April 1990.
2. Environmental Protection Agency, "Guidelines for Infectious Waste Management," 1986.
3. 40 CFR part 260 through 265.
4. National Institute for Occupational Safety and Health, "Guidelines for Protecting the Safety and Health of Health Care Workers," 1983.

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**Appendix A**  
**Request Letter**

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DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS STRATEGIC AIR COMMAND  
OFFUTT AIR FORCE BASE, NEBRASKA 68113 5001



REPLY TO  
ATTN OF SGPB

9 FEB 1990

SUBJECT Request for Medical Hazardous Waste Assessment

to AFOEHL/CC

We support the attached request from Minot AFB for an assessment of their medical hazardous waste handling and disposal operations. Please respond directly to the 857 Strategic Hospital/SGPB, with an information copy to this office, if you can or cannot respond to their request.

*Ronald L. Schiller*

RONALD L. SCHILLER, Colonel, USAF, BSC  
Chief, Bioenvironmental Engineering Division  
Office of the Surgeon

1 Atch  
857 Strat Hosp/SG Ltr,  
5 Feb 90

cc: HQ AFSC/SGPB w/Atch  
857 Strat Hosp/SGPB

DEPARTMENT OF THE AIR FORCE  
857 STRATEGIC HOSPITAL (SAC)  
MINOT AIR FORCE BASE ND 58705-5500

REPLY TO  
ATTN OF: SG

5 FEB 1990

SUBJECT: Request for Medical Hazardous Waste Assessment

TO: HQ SAC/SGPB <sup>DA</sup>  
AF OEHL/CC  
IN TURN

1. The assistance of the AF OEHL is requested to perform an assessment of medical hazardous waste handling and disposal operations. The following areas are of primary concern:
  - a. Disposal of small quantities of hazardous medical waste, to include out of date drugs.
  - b. Storage of regulated medical waste prior to transport, treatment, destruction or disposal.
  - c. Record keeping and reporting requirements.
  - d. The cost effectiveness of contracting for medical waste disposal.
  - e. The proper use of our pathological incinerator.
2. My point of contact for this project is Major John Ellis, SGPB, AV453-3398.

JOSEPH E. KELLY, LtCol, USAF, MC, SFS  
Commander

**Appendix B**  
**Section Survey Form**

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DEPARTMENTAL SURVEY FORM

PLEASE COMPLETE AND RETURN THIS FORM TO THE INFECTION CONTROL  
NURSE BY \_\_\_\_\_.

DEPARTMENT : \_\_\_\_\_

CONTACT : \_\_\_\_\_ AUTOVON: \_\_\_\_\_

This form will be used to compile the following:

- (1) the specific locations where wastes are generated in the medical facility
- (2) how different types of wastes are segregated
- (3) if the wastes are treated in each section
- (4) how the wastes are packaged and labeled for disposal
- (5) the disposal methods used in each section

The following pages give the EPA's statutory definitions of seven types of regulated medical wastes. Please read each of the definitions carefully, decide which ones apply to your department, and then answer the following questions as completely as possible.

If you have any questions on filling out this form, please call Captain Albrecht or Lt Hedgecock at AV 240-3306.

SIGNATURE OF PERSON FILLING OUT THIS FORM \_\_\_\_\_

TRAINING

1. Have you ever received training in medical waste management?  
\_\_\_\_ YES \_\_\_\_ NO

2. Have the other personnel in this department been trained?  
\_\_\_\_ YES \_\_\_\_ NO \_\_\_\_ SOME

APPROXIMATE PERCENTAGE \_\_\_\_\_

3. How often does training occur? \_\_\_\_\_

4. Describe the training you received. \_\_\_\_\_

5. Have you ever seen or read the hospital's waste management

NO

III. Are other personnel? YES NO

IV. ESTIMATED PERCENTAGE \_\_\_\_\_

## 1. CULTURES AND STOCKS

Cultures and stocks of infectious agents and associated biologicals, including: cultures from medical and pathological laboratories; cultures and stocks of infectious agents from research and industrial laboratories; wastes from the production of biologicals; discarded live and attenuated vaccines; and culture dishes and devices used to transfer, inoculate, and mix cultures.

A. Describe the process(es) in which any of the above wastes are generated

---

---

B. Are the wastes treated (e.g., chemical or steam sterilization) in the area?

---

If so, describe the method of treatment?

---

C. Are the wastes segregated from other wastes generated in the area?

If so, describe the method of segregation.

---

D. How are the wastes packaged for disposal (What type of bags, boxes, etc.)?

---

E. Are the waste containers labeled before being removed from the area?

If so, describe the method of labeling.

---

F. How many times per day are wastes removed from this area?

G. What is the estimated daily poundage of wastes removed?

H. Who is responsible for removing wastes from the area, how are wastes transported from the area, and where are the wastes taken?

---

---

COMMENTS - PLEASE PROVIDE ANY ADDITIONAL INFORMATION THAT YOU FEEL MAY BE HELPFUL (USE THE BACK OF PAGE IF NECESSARY).

## 2. PATHOLOGICAL WASTES

Human pathological wastes, including tissues, organs, and body parts and body fluids that are removed during surgery or autopsy, or other medical procedures, and specimens of body fluids and their containers.

A. Describe the process(es) in which any of the above wastes are generated. \_\_\_\_\_

B. Are the wastes treated (e.g., chemical or steam sterilization) in the area? \_\_\_\_\_

If so, describe the method of treatment? \_\_\_\_\_

C. Are the wastes segregated from other wastes generated in the area? \_\_\_\_\_

If so, describe the method of segregation. \_\_\_\_\_

D. How are the wastes packaged for disposal (What type of bags, boxes, etc.)? \_\_\_\_\_

E. Are the waste containers labeled before being removed from the area? \_\_\_\_\_

If so, describe the method of labeling. \_\_\_\_\_

F. How many times per day are wastes removed from this area? \_\_\_\_\_

G. What is the estimated daily poundage of wastes removed? \_\_\_\_\_

H. Who is responsible for removing wastes from the area, how are wastes transported from the area, and where are the wastes taken? \_\_\_\_\_

COMMENTS - PLEASE PROVIDE ANY ADDITIONAL INFORMATION THAT YOU FEEL MAY BE HELPFUL (Use the back of page if necessary).

### 3. HUMAN BLOOD AND BLOOD PRODUCTS

(1) Liquid waste human blood; (2) products of blood; (3) items saturated and/or dripping with human blood; or (4) items that were saturated and/or dripping with human blood that are now caked with dried human blood; including serum, plasma, and other blood components, and their containers, which were used or intended for use in either patient care, testing and laboratory analysis or the development of pharmaceuticals. Intravenous bags are also included in this category.

A. Describe the process(es) in which any of the above wastes are generated. \_\_\_\_\_

B. Are the wastes treated (e.g., chemical or steam sterilization) in the area? \_\_\_\_\_

If so, describe the method of treatment? \_\_\_\_\_

C. Are the wastes segregated from other wastes generated in the area? \_\_\_\_\_

If so, describe the method of segregation. \_\_\_\_\_

D. How are the wastes packaged for disposal (What type of bags, boxes, etc.)? \_\_\_\_\_

E. Are the waste containers labeled before being removed from the area? \_\_\_\_\_

If so, describe the method of labeling. \_\_\_\_\_

F. How many times per day are wastes removed from this area? \_\_\_\_\_

G. What is the estimated daily poundage of wastes removed? \_\_\_\_\_

H. Who is responsible for removing wastes from the area, how are wastes transported from the area, and where are the wastes taken? \_\_\_\_\_

COMMENTS - PLEASE PROVIDE ANY ADDITIONAL INFORMATION THAT YOU FEEL MAY BE HELPFUL (Use the back of page if necessary).

#### 4. SHARPS

Sharps that have been used in animal or human patient care or treatment or in medical, research, or industrial laboratories, including hypodermic needles, syringes (with or without the attached needle), Pasteur pipettes, scalpel blades, blood vials, needles with attached tubing, and culture dishes (regardless of presence of infectious agents). Also included are other types of broken or unbroken glassware that were in contact with infectious agents, such as used slides and cover slips.

A. Describe the process(es) in which any of the above wastes are generated

---

B. Are the wastes treated (e.g., chemical or steam sterilization) in the area?

---

If so, describe the method of treatment?

---

C. Are the wastes segregated from other wastes generated in the area?

---

If so, describe the method of segregation.

---

D. How are the wastes packaged for disposal (What type of bags, boxes, etc.)?

---

E. Are the waste containers labeled before being removed from the area?

---

If so, describe the method of labeling.

---

F. How many times per day are wastes removed from this area?

---

G. What is the estimated daily poundage of wastes removed?

---

H. Who is responsible for removing wastes from the area, how are wastes transported from the area, and where are the wastes taken?

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COMMENTS - PLEASE PROVIDE ANY ADDITIONAL INFORMATION THAT YOU FEEL MAY BE HELPFUL (Use the back of page if necessary).

## 5. ANIMAL WASTE

Contaminated animal carcasses, body parts, and bedding of animals that were exposed to infectious agents during research (including research in veterinary hospitals), production of biologicals, or testing of pharmaceuticals.

A. Describe the process(es) in which any of the above wastes are generated

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B. Are the wastes treated (e.g., chemical or steam sterilization) in the area?

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C. Are the wastes segregated from other wastes generated in the area?

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D. How are the wastes packaged for disposal (What type of bags, boxes, etc.)?

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E. Are the waste containers labeled before being removed from the area?

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F. How many times per day are wastes removed from this area?

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G. What is the estimated daily poundage of wastes removed?

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H. Who is responsible for removing wastes from the area, how are wastes transported from the area, and where are the wastes taken?

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COMMENTS - PLEASE PROVIDE ANY ADDITIONAL INFORMATION THAT YOU FEEL MAY BE HELPFUL (Use the back of page if necessary).

## 7. UNUSED SHARPS

The following unused, discarded sharps: hypodermic needles, suture needles syringes, and scalpel blades.

A. How are the wastes packaged for disposal (What type of bags, boxes, etc.)? \_\_\_\_\_

B. Are the waste containers labeled before disposal? \_\_\_\_\_

If so, describe the method of labeling \_\_\_\_\_

COMMENTS - PLEASE PROVIDE ANY ADDITIONAL INFORMATION THAT YOU FEEL MAY BE HELPFUL.

## 6. ISOLATION WASTE

Biological waste and discarded materials contaminated with blood, excretion exudates, or secretions from humans who are isolated to protect others from certain highly communicable diseases, or isolated animals known to be infected with highly communicable diseases.

A. Describe the process(es) in which any of the above wastes are generated

---

---

---

B. Are the wastes treated (e.g., chemical or steam sterilization) in the area?

---

---

C. Are the wastes segregated from other wastes generated in the area?

---

---

D. How are the wastes packaged for disposal (What type of bags, boxes, etc.)?

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F. How many times per day are wastes removed from this area?

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---

G. What is the estimated daily poundage of wastes removed?

---

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H. Who is responsible for removing wastes from the area, how are wastes transported from the area, and where are the wastes taken?

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COMMENTS - PLEASE PROVIDE ANY ADDITIONAL INFORMATION THAT YOU FEEL MAY BE HELPFUL (Use the back of page if necessary).



**Appendix C**  
**Facility Manager Survey**

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**FACILITIES MANAGEMENT SURVEY FORM**

This form will be used to compile the following:

- (1) how different types of regulated medical wastes are segregated
- (2) how and where regulated medical wastes are stored before treatment and disposal
- (3) how the regulated medical wastes are packaged and labeled for disposal
- (4) how the regulated medical wastes are disposed

If you have any questions on filling out this form, please call Captain Albrecht or Lt Hedgecock at AV 240-3306.

**SIGNATURE OF PERSON FILLING OUT THIS FORM** \_\_\_\_\_

1. How is the medical waste treated and disposed? \_\_\_\_\_
2. Estimated pounds of medical waste produced per month \_\_\_\_\_
3. Estimated cost to dispose of medical waste per month \_\_\_\_\_
4. Is the waste disposed of \_\_\_\_\_ off-site \_\_\_\_\_ on-site
5. Are different types of medical waste segregated before treatment or disposal?  YES  NO  SOMETIMES  
WHICH ONES? \_\_\_\_\_
6. If off-site, how is the waste transported to the site?  
 base personnel  contractor  
If by contractor, what is the name, address, and the telephone number of the contractor? \_\_\_\_\_
- Is the contractor permitted by the EPA?  NO  YES  
If yes, what is the permit number? \_\_\_\_\_
7. If the waste is treated off-site, how is it packaged before transporting off-site? \_\_\_\_\_
- Are the containers  Rigid?  
 Leak-resistant?  
 Impervious to moisture?  
 Of sufficient strength to prevent tearing or bursting under normal conditions of use and handling?  
 Sealed to prevent leakage during transport?
8. Are any medical waste containers labeled?  
 YES  NO  SOMETIMES  
WHICH ONES? \_\_\_\_\_  
What type of information is included on the label? \_\_\_\_\_  
\_\_\_\_\_
- Are the containers marked with the biohazard symbol? \_\_\_\_\_
9. If the waste is disposed of onsite by incineration, complete the following questions.

Total number of incinerators \_\_\_\_\_

Age of each incinerator \_\_\_\_\_

Capacity of each incinerator \_\_\_\_\_

Permit Number \_\_\_\_\_

Approximate down time per month \_\_\_\_\_

Type of stack testing done and frequency \_\_\_\_\_

Type of ash testing and frequency \_\_\_\_\_

Operating Cost (including fuel consumption and maintenance) \_\_\_\_\_

10. Does the hospital have a waste management plan?  YES  NO

11. Are facilities management employees trained in medical waste management?  YES  NO  SOMETIMES

WHICH ONES? \_\_\_\_\_

HOW OFTEN? \_\_\_\_\_

12. Is this medical facility subject to any regulatory requirements other than EPA requirements?  YES  NO

WHICH ONES? \_\_\_\_\_

13. Does this medical facility utilize any recordkeeping practices?  YES  NO  SOME

How is this done? \_\_\_\_\_

14. Does this facility accept any regulated medical waste from sections that are not co-located with the hospital or off-site?  YES  NO

If yes, list below the facilities and the approximate distances to these facilities and how the waste is transported.s.

SITE	DISTANCE (miles)	TRANSPORTOR

**TREATMENT AND DISPOSAL OF MEDICAL WASTES**

C	P	B	S	A	I	U
U	A	L	H	N	S	N
L	T	O	A	I	S	U
T	H	O	R	M	O	S
/	O	D	P	A	L	E
S	L	/	S	L	T	D
T	O	O	P		I	S
O	G	R			O	H
C	I	O			N	A
K	C	D				R
	A					P
	L					S

**ONSITE TREATMENT**

A. INCINERATION

B. AUTOCLAVING

C. CHEMICAL  
TREATMENT

D. GRINDING

E. OTHER

**ONSITE DISPOSAL**

A. INCINERATION

B. BURNING ONSITE

C. BURIAL ONSITE

D. INTO SEWER OR  
SEPTIC TANK

E. OTHER

**OFFSITE TREATMENT &**  
**DISPOSAL**

A. PICKED UP WITH  
OTHER SOLID  
WASTE

B. UNDER CONTRACT  
WITH MEDICAL  
WASTE HAULER

C. TREATED OFFSITE

D. LANDFILLED OFFSITE

E. SENT TO RENDERING  
PLANT

F. OTHER

**Appendix D**  
**Summary of Waste Training**

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### Training

Section	% Trained	% Reviewed Hospital's Waste Plan	Training Frequency
Aeromedical	100%	0%	Annual
Dental	100%	100%	Quarterly
Emergency	0%	0%	Annual
Immunizations	90%	85%	Annual
Lab	0%	0%	None
Multiservice			
Ward	100%	100%	Annual
Pediatrics	100%	75%	Annual
Pharmacy	0%	0%	None
Primary	100%	100%	Annual
Ob Clinic	100%	0%	Monthly
Ob Ward	100%	0%	Annual
Surgery	100%	0%	Daily
Surgery			
Clinic	90%	85%	Annual
Vet Clinic	0%	0%	None

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**Appendix E**  
**Summary of Infectious Waste**  
**By Type**

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**Disposal of Blood, Pathological, and Culture Infectious  
Wastes in Pounds per Day**

Section	Quantity of Blood Waste	Quantity of Pathological Waste	Quantity of Cultures and Stocks Waste
Aeromedical	None	None	None
Dental	1	1	None
Emergency	.5	None	None
Immunization	None	None	.007
Lab	20	1	25
Multiservice			
Ward	.5	None	None
Pediatrics	None	None	None
Pharmacy	None	None	None
Primary	None	None	None
Ob Clinic	None	None	None
Ob Ward	2	None	None
Surgery	15	None	None
Surgery			
Clinic	5-10	None	None
Vet Clinic	1 *	None	1

\* Animal blood and blood products

**Disposal of Isolation Waste, Used and Unused Sharps,  
and Who Transports It**

Section	Quantity of Isolation Waste	Quantity of Used Sharps	Quantity of Unused Sharps	Removed by
Aeromedical	None	1 qt/mo	None	Housekeeping
Dental	Varies	1 lb/day	Included in Sharps	Housekeeping
Emergency	None	1 lb/day	Included in Sharps	Housekeeping
Lab	None	1 lb/day	Included in Sharps	Housekeeping
Multiservice				
Ward	Varies	2 qt/mo	Included in sharps	Housekeeping
Pediatrics	None	1 qt/mo	None	Housekeeping
Pharmacy	None	1 qt/wk	Included in Sharps	Housekeeping
Primary	None	2 qt/mo	Included in Sharps	Housekeeping
Ob Clinic	None	1 lb/mo	Included in Sharps	Ob-Gyn Clinic
Ob Ward	None	1 lb/mo	Included in Sharps	Housekeeping
Surgery	None	1 lb/day	Included in sharps	Housekeeping
Surgery Clinic	None	5 oz/day	Included in Sharps	Housekeeping
Vet Clinic	< 1 Lb/day *	1 lb/day	Included in Sharps	By POV to hosp

\* Rabies suspect. The head goes to a state lab for testing, the body is incinerated if the animal is small. If it is a large animal entomology disposes of the body.

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